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ABSTRACT

The purpose of this paper is to describe the process of adaptation of an Instructional Design and Development course from a residential course to a Web-based course offered in the Distance Masters program in Instructional Systems Technology at Indiana University. Lessons from the literature are discussed, followed by a description of the Web-based course, collaborators in the course design, and guiding principles for course design. The following factors that impacted the adaptation process are outlined: instructor experience and openness to innovation; technological capacity and infrastructure; rationale for adaptation to Web-based instruction; fit of course goals with technological capacity; labor force available for course adaptation; technological equipment and sophistication of learners; learner motivation for taking the course; administrative support; and tuition and fees. Recommendations for adapting a course to the Web are also discussed. These include: start development early; confirm capacity of technology to address needs; develop policies for ownership of materials; have minimum technology standards for students; provide detailed technology training for learners; provide learners with guidelines for when to use each communication vehicle; test-adapt-test-adapt-test-adapt; and recognize that all faculty are impacted by the implementation of a single course. (Contains 10 references.) (AEF)

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M. Simonson

ADAPTING A MASTER'S COURSE TO THE WEB: PRINCIPLES, STRATEGIES AND RECOMMENDATIONS

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Abstract

The purpose of this paper is to describe the process of adaptation of R522: Instructional Design and Development, from a residential course to a web-based course offered in the Distance Masters program in Instructional Systems Technology at Indiana University. A description of the web-based course, factor impacting the adaption process, and recommendations for adapting a course to the web are also discussed.

In Fall 2000, the Instructional Systems Technology department at Indiana University in Bloomington began offering its 36-hour Master's' degree program at a distance. Half of the 17 students who enrolled in the program are from Indiana; the rest are from out of state, spanning three time zones. Just over half of the students are women; the group is evenly split among those who work in K-12, those in higher education, and those in the corporate field. The projected time to complete the program being 3 years, and during the first semester of the program, the students enrolled in four hours of coursework: R521: a one-hour orientation to the field, and R522: a three-hour course about basic instructional design and development.

R522: Instructional Design and Development is the first course the core set in the IST department. Students in the regular residential program come in as a group and go through a core set of courses; two in the Fall semester and two in the Spring. The other usual Fall course is R511: Instructional Technology Foundations I, an introduction to and history of the field. The students tend to take the core set together throughout the first year of the program, after which they have more traditional individual choice of courses for the rest of the program.

R522 is an in-depth explanation of instructional design; the students are introduced to the ADDIE model and instructional design theories, and also work on usability, formative evaluation, and visual design. The deliverables for the course include two projects; students develop materials to teach one concept and one procedure. Therefore, they become familiar with at least two different instructional design theories for each type of instruction, and follow the procedures for materials design and development for two projects.

The IST program focuses heavily on group work; students enter the program and immediately begin working very intensively with teams. The program is also project-based; students work in their teams on two large projects throughout the semester. We wanted to maintain this approach in the online Master's program; the ideas of intensive group work and thorough materials production at a distance were the first few challenges of designing this course. Our program also emphasizes reflective practice; students not only on look at their finished product, but are also required to reflect and write about the group process, group dynamics, team functioning, as well as on the instructional design process itself. Student write weekly e-mail updates throughout the semester, as well as a project report at the end that discusses the design process; there is as much emphasis on process as on product. Finally, we wanted to maintain a feeling of community among the students. As alluded to earlier, about 50 students, both masters- and doctoral-level, enter the program every fall. These students go through core together and really start to develop a sense of community; they feel like they're all going through boot camp together. This feeling of community and interdependence is another thing that we wanted to replicate in the Distance Master's program.

In the residential program, incoming students have a one-day orientation session the week before school starts. They meet each other and the faculty, have tours of the department and the School of Education, and have a general introduction to the program. They spend the next number of weeks getting to know each other in classes and in the social spaces in the building. The Distance Master's students would not have this latter opportunity, so we created a 4-day on-site orientation program for them. The week

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before the beginning of the semester, all of the distance students came to Bloomington to engage in a variety of content-based, group-building, and administrative tasks. We wanted to instill a "boot camp" feel to the orientation to replicate what the residential students go through in their first few weeks of core. We decided that if we were serious about the community aspect of the program, we would have to emphasize it from the beginning, and that would include bringing students and faculty together face to face.

The problem that we were trying to address in designing a web-based version of R522 was how to create an online course that matches the residential experience in terms of assignments, criteria, the problem- and project-based nature of the program, the emphasis on teamwork and group-based interactivity, the implementation of reflective practice at several levels, and maintenance of a community of learners and cohort support.

The purpose of this presentation is to describe what we went through in the planning, development, and implementation of a flexible online course based on our principles, which we have taken to be learner-centered design, knowledge construction, active learning, collaboration, and multiplicity.

Lessons from the literature

Learners thrive in learning communities. We know in the distance situation, students who are geographically remote from the instructor and other learners can feel a sense of isolation. One way of reducing the feelings of isolation is to know that you have a number of people you can count on and who are doing the same things and going through the same things on the other side of the country. Being part of a community reduces attrition. It is well-known that when people feel part of something, they are less likely to drop out because they know that someone else is depending on them. If a student is working on a group project, then suddenly decides she really doesn't feel like continuing with the program, what keeps her engaged is knowing that others are counting on her. The more that learners need each other, the better we are in terms of keeping them in the program (Palloff & Pratt, 1999; Raymond, 1999).

Learners in an online format need a great deal of curricular, instructional, and technological support (Sewart, 1993; Morgan & Tam, 1999). All of these are important in any course, and at a distance, their needs are magnified with regards to the technological support. A number of presentations at this conference were about a certain online course, but students came to campus anyway. This is not the case for us; since half our students are out of state, as far away as South Dakota and New York, coming to campus is not an option. If these people could come to Bloomington, they would enroll in the residential program. But they can't, which makes them extremely dependent on technological support. It is critical then, that these students be able to access to the kind of supports they need in order to achieve the goals of the course, whether those supports are library readings, grading rubrics for assignments, presentation materials, or technological tools.

Learners need frequent and meaningful interaction with the instructor. It also goes without saying that, in any course, learners seek interaction with the instructor. In a distance format, when students don't have the luxury of coming to class every week and seeing the instructor, they have to fulfill their interaction needs in other ways (Kirby, 1999; Crouch & Montecino, 1997). We remained cognizant of these differences and worked to build in other opportunities not only for learner-instructor interaction, but also for learner-learner interaction.

Activities should be task-based. Because students who take online programs are often working fulltime, perhaps even in the field, they tend to favor the practical over the theoretical. Therefore, the projects must be not only applicable, but authentic and meaningful as well. Evaluation therefore should be authentic and based on those tasks (Nelson, 1998).

Learners should be actively involved in the evaluation and improvement of the course (Cheung, 1998). Our students, being the first cohort to go through the program, know they are working with a double-edge sword. On the one hand, they have the opportunity to almost mold the class to their needs. On the other, they are working with a fledgling program that is still working out all its kinks. Later in this paper we will describe the dialogue we have with the students about course improvements.

The final major theme we found in the literature was that of faculty support. It is important to offer not only release time for teaching online – which is, in general, much more time-consuming than teaching in the regular classroom, especially in the case of a new class – but also provide remuneration for any course development the instructor is involved in. Just like students, faculty will need extensive technical support; professors who are not instructional designers can also benefit from instructional consulting help when working in the new format (Saba, 1999; Schifter, 2000).

Description of the web-based course

There are three major components of the R522 course. First is a website which is a one-way communication vehicle in which the professor provides the students with a great deal of information about the logistics, the topics, and the requirements of the course. All of the instructor-produced content resides on the web site, including links to other resources and information about books and other references. The second part is an asynchronous discussion forum in which students engage in online synchronous and asynchronous conversation. They can work at a class level, posting messages of interest to all the students; they also have private team areas that are open only to team members and that other students and the instructor cannot view. In addition to posting and replying to messages, in any of these areas students can post URLs for others' reference and can upload documents, such as their project reports or the instructional materials they are creating. The final element in the course is an e-mail listserv through which the instructor can communicate with all students quickly. Because e-mail is a "push" medium (the message arrives in their inbox), it offers more immediacy than a "pull" option like the forum (where students have to go to a particular URL to read a message). Students can also communicate with the entire class via the listserv if they so desire, although thus far they have very rarely taken this opportunity. There have been four iterations of this web-site and forum to this point (the middle of the semester), so it truly is an on-going design process of design and development for the on-line resources of this course.

The website is one-way information from instructor to students. A "home" link introduces the IST program and the course, with each student's digital picture there to give a feeling of community, so that the first thing students see is their classmates as a reminder that they are part of the larger community. This function is helpful not only for the students, but also for the instructors and staff to remember the students they met at the orientation and to put a face to a name.

Also on the index page, the "contact information" link lists how to get in touch with the instructor, the two graduate assistants who deal primarily with technological support, the program coordinator, and department offices for program and future course questions.

The "syllabus" link provides students with everything they need to know about how the course is run, including the course philosophy and approach, objectives for the course, assignments, evaluation and grading. Demographic information provided includes class meeting times and e-mail office hours. Office hours have been set so that students know that, no matter when they send e-mails to the instructor, there are two times during the week when emails will be answered. This alleviates the concern that "I e-mailed her an hour ago, why hasn't she answered me yet?" Class meeting times (live chats) were established as a metaphor for a class meeting: getting to "see" everyone at the same time and having the instructor there in real time to answer questions in front of everyone and "asking in front of the whole class" rather than replicating private e-mail conversations with the professor. (The weekly chat is the only mechanism that combines the two elements of timeliness and publicness; if you post in the forum, you lose timeliness - if you send private e-mail, you lose the publicness.) Basically, the syllabus is the contract with the students for what they will complete in the course.

The "schedule" is the driving page of the website. This is where the students go in order to manage and work through the course. The schedule provides a weekly calendar of presentations, discussion topics, and the deliverables due for the week. Each "presentation" includes detailed information such as the objectives of the discussion, an overview of the key points of the discussion, additional resources they should read to become more familiar with the topic, and questions for reflection. The "deliverables" links take the students to assignment pages which specify the date due, the point value and percentage of grade, any instructions for completing the assignment, and evaluation criteria so that students know how the assignment will be graded.

Also on the index page, the students find links to a "resources" page that provides a list of all materials students need to complete the course. The "turn in your work" link takes the students to a password protected fileserver where they upload their completed assignments to the instructor, so that the instructor does not have to go search through the forum or to deal with e-mail attachments every time the students hand in assignments. The "gradebook" link is a feature provided through the University Information Technology Services and Bureau of Evaluative Studies and Testing (BEST). Here, the instructor can create a Microsoft Excel spreadsheet with students' grades and narrative comments, and then post those to a password protected fileserver from which students can access all their grades and comments. The index page also features links to an "evaluation" website which is also administered by BEST and where students complete midterm and final course evaluations. The index page also includes links to a site map, a "frequently asked questions" page, and the class Sitescape Forum.

The second technological element of the R522 course is the asynchronous discussion forum. The university has had a SiteScape Forum license for at least three years, and this software is used to create a virtual meeting space for the course, where learners can discuss issues related to the class with each other in both synchronous and asynchronous formats. The R522 class forum includes four distinct spaces: first, there is a weekly discussion topics space where students go to interact with the instructor and other students regarding topics such as analysis, design, development, usability testing, creating instructor materials, implementation, evaluation, visual design, web authoring, concept learning, procedure learning, group skills for instructional design, and being a reflective practitioner. A second space in the class forum is devoted to group dynamics, and students use this space to discuss the readings about group dynamics that are required for the course. Third, there is a general discussion area where students can talk about any topics or issues related to the course, but not specifically focused on weekly discussions or group dynamics. Finally, each student team has a private space which is password-protected space and where they can go to communicate, share documents and work on their project deliverables. There is one other SSF space that is, strictly speaking, at the program level, not the course level. The Core Café is a space dedicated entirely to social and non-R522 topics. At the orientation, the students were involved in designing a metaphor (a town) for this student-run space, and emphasized that it could be used for any non-R522 discussion. Students could post messages about their personal lives and jobs, could add links to personal and career-related web pages, could post hints for technical problems, etc. In the beginning there was a good level of activity in the Core Café; however, postings in the Core Café have dwindled to none. It is possible that once the students have a need to communicate as a class (i.e., not just on their project teams), about which other courses to take, etc., that discussion in the Core Café will pick up again. It is something that we are actively watching for research purposes.

The third technological element of the course is the class listserv, which is used primarily by the instructor to communicate public information that needs to go to all students at the same time. Because of the immediate nature of e-mail, the listserv is used for announcements that require a timeliness and priority that would be ill-served by posting in the SiteScape Forum. The listserv is used by the instructor to provide reminders of deliverables due, to make changes in weekly plans, the send out clarifications regarding criteria for assignments, etc.

Instructional design process for adapting the course

Collaborators in course design

Our design process was a collaborative effort with five stakeholders/groups. The client in this design project was the instructor of the course, who has a great deal of experience in instructional design and web development. Given this expertise, the client was able to provide both subject matter and technical expertise regarding the course design. The Director of the Distance Master's program was also a key stakeholder in the design process, as it was expected that the design of this course might serve as a template for future IST Distance Master's courses. The IST Department Chair was a third key stakeholder in the design process, concerned with administrative aspects of the course as well as the relationships between the Distance Master's course (R522), the Distance Master's program, the residential program and school requirements. The fourth stakeholder group, the course designers, consisted of a team of five advanced IST students, who worked either as instructional or interface designers for this project. These students were either enrolled in advanced design and development courses, or submitted the design of this course as a development project, which is required for completion of an IST degree. Finally, in addition to these key stakeholders, students who had previously taken R522 courses were also involved in this design project, providing valuable input regarding the instructional and interface designs for the course web-site.

Guiding principles for course design

Four fundamental principles guided all aspects of design and development for the R522 course website and forum. The first principle was that the web-based course must be of comparably high quality to the residential course; it is not acceptable to have a "R522 light" for distance students – or to differentiate the quality of experience our students received in the course based on the course format. Secondly, the web-based course must serve as a model for future web-based courses to be taught in the IST Distance Master's program, which meant that the technologies used to support the course and the interfaces used to present course materials could not be so highly specialized that they would be difficult to replicate in other courses. Third, the development process used would have to foster faculty ownership and commitment to the web-based course and the Distance program because we believe that faculty involvement is critical to the overall success of the Distance Master's program. Finally, the design team proceeded from the assumption that an iterative model of design and development would be most appropriate for adapting the

R522 course from the residential program to the web, because the iterative approach would best allow designers to address the interactions between content presentation, instructional processes and interface elements, and to adjust the course design as appropriate.

Process of adaptation

The following process was used to adapt the residential course to the web-based environment described above. First, the design team met with the instructor to confirm the goals and objectives of the course, and to make sure that the goals and objectives were similar to the residential course. Second, the instructor identified the major content components of the course and considered how these components would best fit in the web-based instructional environment (the major components of the course were the instructional design process, instructional theories and group dynamics and critical reflection regarding instructional design and teamwork). Having determined the major components of the course, the third step of adaptation was the establishment of an overall technology strategy for the course (at this point, the instructor and designers agreed on using web pages to provide instructional materials, using the SiteScape Forum to foster group interaction and team interaction, and using the listserv to communicate time-sensitive messages to the entire class). Having identified the course components and the technology strategy for the course, the design team worked with the instructor to design an interface that would best reflect the priorities of the course and emphasize the major course components. The interface design process involved the identification of specific web-pages and forum links that would be needed, as well as deciding which elements would be needed on each type of page. The result of this step was the development of templates for each element of instruction (templates for the schedule page, presentations pages, assignments pages, resources, pages, etc.). Once a list of components had been identified, the instructor and the interface design team undertook discussions regarding the relationships between the various web pages and forum spaces in order to determine the most appropriate navigation paths and navigation structure for the course website. With templates for specific web-pages and a navigation structure in place, the design team turned to the task of gathering the actual instructional materials from various subject-matter experts, textbooks, journals, web sites and personal experience to write the content for the presentations pages and to develop the other content materials that were needed for the web-based course, which was step six of the adaptation process. These content documents were produced in Microsoft Word 98 and saved in rich text format, so that they could more easily be imported to html editors and coded as html files, which was the next step of the adaptation process. After html files were created, the files were usability tested with several representatives of the target audience, identifying changes to be made and updating the pages based on target audience feedback. The web-site was then ready to be uploaded to the university file server where it was tested for functionality and compatibility. We learned that there were some compatibility issues between the Unix commands used by the university servers and the programming code used when creating html files with Microsoft's Frontpage web editor software, resulting in the need to re-code a number of html files. During the onsite orientation, we showed the students the course web-site and trained them in its use. At this time, students also received training on the basic features of the SiteScape Forum, the group editing features available in Microsoft Word, as well as basic skills of teamwork and group dynamics. We felt that the course design would not work if we did not train the students in how to implement the design; and for this reason, an orientation was designed not only to provide students with the skills and knowledge they would need to be successful in this program, but also to give them the tools and technologies that would support their skills and knowledge. Based on this orientation experience, students began immediately to provide comments and recommendations for improving the web design, so a mechanism was created to gather their input, and these inputs are used for periodic maintenance and upgrading of the course website. We are now engaged in ongoing monitoring of the university's technological capacity to make sure that we are continuing to provide our students with a course website that is most appropriate to the goals of instruction and best addresses students' needs given available technologies.

Factors impacting the adaptation process

Given the design process that has been outlined above, the purpose of this section is to discuss some issues that have probably impacted our development process, which would need to be taken into account by others who are planning to adapt a residential course to the web environment.

Instructor experience and openness to innovation

First, the instructor's background and experience with instructional design and with technology impacts how easy or how difficult it would be for a team of designers to come in and work to create a product quickly. In our case, the instructor was a designer and an experienced computer user, so she had a

very good grasp of both the process and the product she wanted. Working with someone who had varying degrees of experience in pedagogical strategies, instructional design, and communications technology would require different things of the design team and would yield very different results.

It is doubtful that an instructor would be willing to teach a web-based course if that person were not in some way open to innovation, yet instructor willingness often has little to do with what they end up teaching. The degree of an instructor's openness, willingness to risk, and acceptance of ambiguity will very likely have an impact upon how successful a web-based course may be.

Technological capacity and infrastructure

With the development of each course, there is a struggle to balance the competing issues of what technologies will be supported by the university, what is the greatest level of functionality that can be offered, what is the lowest common denominator of student technology that must be considered, and what technologies will be most easily accessible and cost efficient for students.

Rationale for adaptation to web-based instruction

For an IST department, the creation of a web-based program works not only at offering our program to those who cannot come to Bloomington, but also allows us to practice what we preach. In the tradition of the old lab schools, it gives us an opportunity to implement our ideas, to see if what we are reading, teaching, and proposing for others really does work, and what the issues are. It gives our students an opportunity to be involved in the design, development, and maintenance of a program before they go out into the world to create their own. The reasoning behind the creation of web-based instruction is likely to impact the design emphasis, as well as the time that can be dedicated to the adaptation process. If we didn't have students pushing us for this type of experience and needing to have this type of experience, we may not have been so quick to create the Distance Master's program.

Fit of course goals with technological capacity

Another factor that impacts the adaptation process is the fit of course goals with technological capacity. How much of a project-focus, readings focus, team-based focus, and individual focus there is in a course will determine what type of web-based design is needed. For example, all of the instruction and interaction in R522 is text-based. In the Spring, we will offer R541, a production course in which students do individual projects in Director, a web page, an audio presentation, and video presentation. The content of that course will greatly increase the technological needs and will require different tools and ways of working.

Labor force available for course adaptation

The instructor of this course could not have created the course materials alone. Fortunately we had graduate students who needed and wanted this experience and who were willing to work for course credit or to complete a required development project – if we hadn't had that labor force, it would have been all but impossible to get this material developed in the six-week time frame during which it was completed. The make-up of your labor force may differ: you may need to do much of the instructional design on your own and delegate the web development to others. Your time-frame may permit a few people to work more slowly on the development.

Technological equipment and sophistication of learners

As the faculty member teaching this course, one of the things that I'm most appreciative of is that the program development team created a set of minimum technology standards for the students, and told prospective students that they could not enroll in the program if they didn't have technology that met these basic specifications such as processor speed and modem speed and number of phone lines. We designed with a certain expectation in mind, and even then, we have made changes to make sure that we addressing the lowest common denominator of technology sophistication so that we aren't leaving any of our students behind. Nonetheless, we think it is not a burden to require that Distance students have more sophisticated computer equipment and connectivity capacities than residential students.

Learner motivation for taking the course

We have been trying diligently in the design to create an environment in which students really want to collaborate with team members, and to be engaged in community. We continue to think in terms of the design about how best to address community. The challenge with this type of program is to learn how to balance the interests of independent, self-motivated learners with the need to build professional community, to match those interests with the goals and purposes of the program, and to try to design a course website that links the goals of the learners with the goals of the course.

Administrative support

We have two graduate assistants who are full-time technology support for the course website, and this frees up the instructor to spend time addressing the curricular and instructional issues related to the

course. Without this administrative support, it is highly likely that most of the instructor's time would be spent doing trouble-shooting and problem solving with respect to technology. An example of the type of things the graduate assistants address include whether chat programs should be used for team collaboration, which chat programs work best, and dealing with the times that university servers go down and students can't access forums or the class web-site.

Tuition and fees

There is an outstanding question as to whether the return on investment outweighs the costs of creating and implementing web-based courses. The need to generate revenue from a Distance Master's program, at some point, will become a factor that impacts the design and adaptation of residential courses to the web environment. The fact that our department is committed to this program in order to provide instructional design, development and research opportunities for our students means that this Distance Master's course and the program as a whole have an entirely different impact on our department than would be the case if the primary concern of our department was to generate revenue from this program.

Recommendations

Start development early

The initial development of the course described in this paper occurred over a six-week period from July to August 2000, and required approximately 500 hours of labor from a development team of five individuals and the instructor of the course. Obviously, the more people you have available and the more time you have, the better. Although the course development took only six weeks, the administrative and department-level foundation had been laid over the previous 6-12 months. Even if you do not begin designing right away, you need to start talking to the stakeholders, setting out requirements, getting faculty, staff and administrative buy-in, and dealing with bigger-picture issues.

Confirm capacity of technology to address needs

Confirm capacity of technology to address needs. Does the university provide the technological tools, software programs, and administrative support that will be needed to create a successful distance learning experience? Make sure that the programs and software you choose are appropriate for the delivery mechanisms, for your students, and for your content. While not asking for new equipment and software costing thousands of dollars, require a solid minimum set of technology standards that your students will meet. Provide faculty with the best equipment and connection possible, from the office and from home.

Develop policies for ownership of materials

There is much discussion of who owns what in the creation of online courses. Each university has its own policy. Make sure you are familiar with yours and that your faculty agree to abide by its terms. These polices can act as disincentives for faculty to create excellent online instructional materials, so communicate with administration about potentially updating and modifying policies that are too restrictive or that flout general intellectual property rules.

Have minimum technology standards for students

As was previously mentioned, learning at a distance requires certain tools that are different from those a regular student may need. Stating explicitly what students will require is useful in that students can compare their present capabilities to the minimum standards and have good guidelines on upgrading. Additionally, if they want to buy a new computer, they have the standards at hand. Our university, like many others, has special hardware and software deals with a variety of companies that the Distance students can take advantage of. In our team-based program, if one student cannot connect or complete the work because he doesn't have the software, it is not just his problem, it is his team's problem, and therefore the class's problem.

Provide detailed technology training for learners

Residential students and faculty have enough problems with getting their technology to work smoothly. Students learning at a distance are exponentially challenged to learn and troubleshoot their technology problems. In the residential IST program, students with questions can easily find someone in the lab or in the hallway to help them. The Distance learners may have no one within 500 miles who is working with this software and therefore must rely only on himself and the available resources. To this end, we not only gave students a crash course in much of the software and tools they would be using, but also taught them how to trouble shoot and where to go for help. There is a telephone help desk that they have access to, as well as Indiana University's Knowledge Base, an award-winning technology information database.

Provide learners with guidelines for when to use each communication vehicle

We offered very little guidance about which tools were best suited, according to our research, for what kinds of communication. Some of our teams did everything from team meetings to actual writing and development, completely synchronously, which ended up being long chat sessions that were useless to them later, and $100 conference call phone bills. This is not surprising that students will take a while to figure out the best methods for communicating in the new way. Because students are used to meeting face-to-face and talking, they assume that the chat format works for every kind of interaction. In the future, we will offer students guidelines of when to use the Forum, when to use chat, when to use e-mail, etc.

Test-adapt-test-adapt-test-adapt

It is highly unlikely that the first version of the course website created will be the best or most effective one, so you should plan for and engage in at least several iterations of usability testing with representatives of the target audience, and use the results of those tests to adapt the website in order to improve the educational experience for the learners.

Recognize that all faculty are impacted by the implementation of a single course

One faculty member in isolation will not be able to design, develop or implement a web-based course. It takes the support of an entire faculty to complete this process. Additionally, the department as a whole needs to have buy-in to the process and the product. If there are faculty members who see the online version of the program as being watered-down and therefore less valid than a "regular" degree, these concerns need to be addressed. Chances are good that during the development and first implementation of online courses, the lead faculty member will have to lessen her other departmental responsibilities, and the other faculty members have to be willing and able to pick up that slack. Although some faculty may never teach in the online format, they may be asked to "guest lecture" or find other ways to interact with the Distance students. Even if they have absolutely no contact wit the online program, their lives and jobs will be affected by the program and therefore they are important stakeholders in the process.

Conclusion

The process of adapting a residential course in Instructional Systems Technology to a web-based course for a distance masters program has been a challenging, and at times, a difficult experience. This process of adaptation has required that the instructor and the instructional design team grapple with issues of technology support, software capabilities, the collection and dissemination of course resources, the technological skills of learners and faculty, and the motivation of learners and faculty to create and sustain community. It has required that the instructor move out of the comfort zone of familiarity with the residential learning environment to consider what aspects of that environment are most appropriate and can best be replicated in an on-line environment, and what unique features of the on-line environment can facilitate learning.

Each adaptation of a residential course to a web-based environment will be in many ways unique and non-generalizable, as is the case of adaptation for the R522 course which has been described here. Yet, consideration of the experiences of this instructor and instructional design team may offer some insight to those who are in the process of adapting other courses to web environments of issues that impact adaptation, including course objectives, technological capacity, and learner skills and knowledge related to the use of sophisticated technology.

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